GENERAL DESCRIPTION

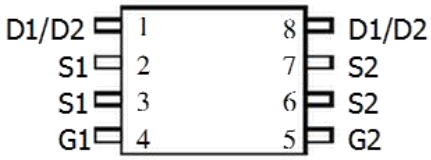
DP8204 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

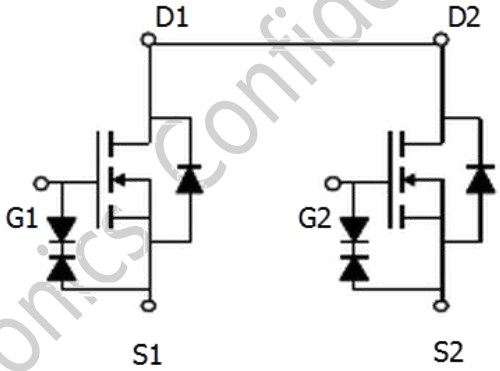
PRODUCT SUMMARY

V_{DS}	20 V
I_D (at V_{GS}=4.5V)	9.0A
$R_{DS(ON)}$ (at V_{GS} = 4.5V)	10.5mΩ
$R_{DS(ON)}$ (at V_{GS} = 3.7V)	11mΩ
$R_{DS(ON)}$ (at V_{GS} = 3.1V)	12mΩ
$R_{DS(ON)}$ (at V_{GS} = 2.5V)	13mΩ

ESD Protected: 2KV HBM

TSSOP-8
Top View





ABSOLUTE MAXIMUM RATINGS T_A=25°C unless otherwise noted

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [c]	T_A=25°C	I_D	9.0	A
	T_A=70°C		7.0	A
Pulsed Drain Current [a c]		I_{DM}	50	A
Power Dissipation [B]	T_A=25°C	P_D	1.50	W
	T_A=70°C		1.00	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	°C

THERMAL CHARACTERISTIC

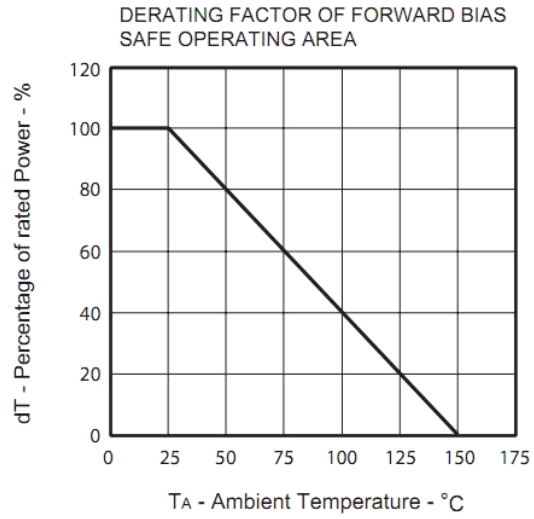
Parameter		Symbol	Limit	Unit
Maximum Junction-to-Ambient	Steady-State	$R_{\theta JA}$	80	°C/W

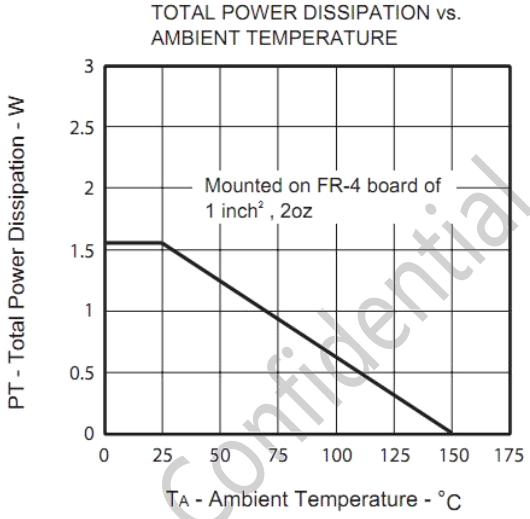
ELECTRICAL CHARACTERISTICS (TA=25℃ unless otherwise noted)

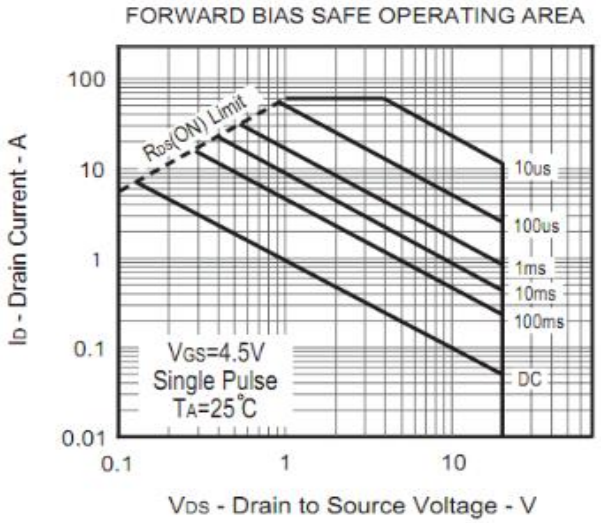
Parameter	Symbol	Condition	Min	Typc	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±10	μA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.5	0.85	1.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=4.5A	7.5	10.5	13.5	mΩ
		V_{GS}=3.7V, I_D=4.5A	8	11	14	mΩ
		V_{GS}=3.1V, I_D=4.5A	9	12	15	mΩ
		V_{GS}=2.5V, I_D=3.5A	9.5	13	16.5	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=4.75A	-	28	-	S
Dynamic Characteristics [b]						
Input Capacitance	C_{lss}	V_{DS}=10V, V_{GS}=0V, F=1.0MHz	-	980	-	pF
Output Capacitance	C_{oss}		-	213	-	pF
Reverse Transfer Capacitance	C_{rss}		-	189	-	pF
Switching Characteristics [b]						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=16V, I_D=4.75A V_{GS}=4.5V, R_{GEN}=6Ω ,	-	24	-	nS
Turn-on Rise Time	t_r		-	66	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	116	-	nS
Turn-Off Fall Time	t_f		-	46	-	nS
Total Gate Charge	Q_g	V_{DS}=16V, I_D=9.5A, V_{GS}=4.5V	-	10.7	-	nC
Gate-Source Charge	Q_{gs}		-	2.1	-	nC
Gate-Drain Charge	Q_{gd}		-	5.4	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=1.7A	-	0.8	1.2	V
Maximum Body-Diode	I_S	-	-	-	2.5	A

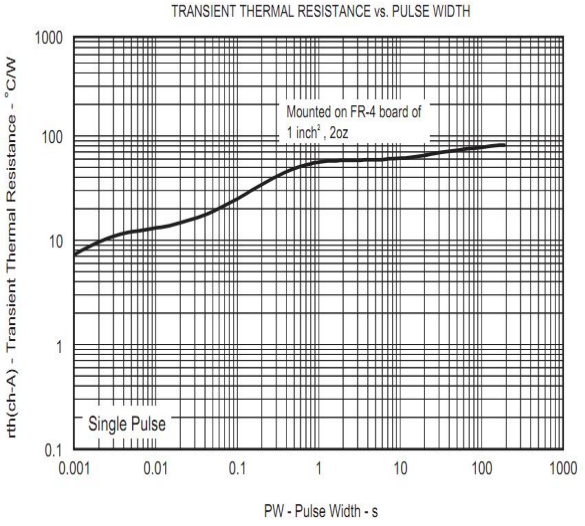
Notes
a.Pulse Test:Pulse Width < 10us, Duty Cycle < 1%.
b.Guaranteed by design, not subject to production testing.
c.Drain current limited by maximum junction temperature.
d.Mounted on FR4 Board of 1 inch2 , 2oz.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

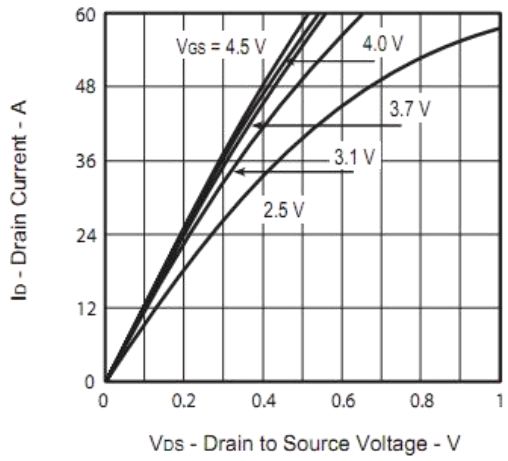




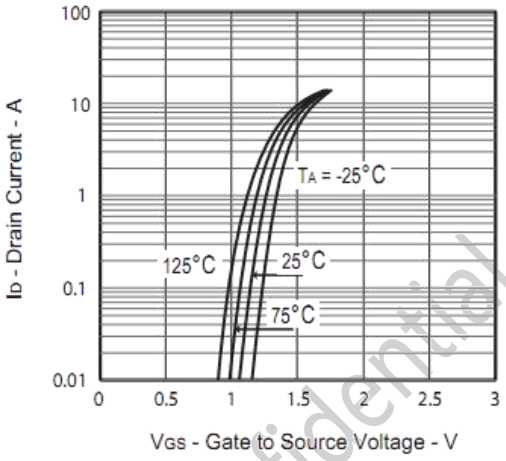




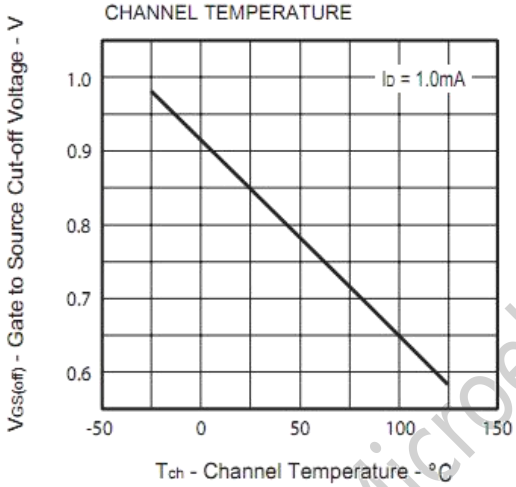
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



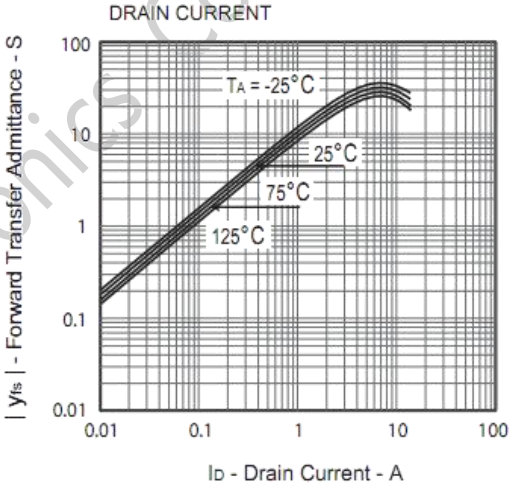
FORWARD TRANSFER CHARACTERISTICS



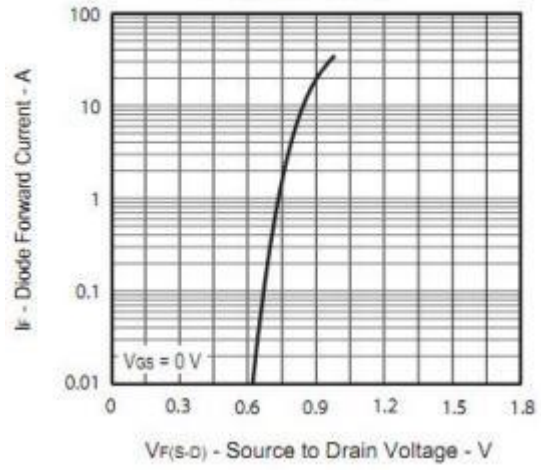
GATEBTO SOURE CUT-OFF VOLTAGE vs.
CHANNEL TEMPERATURE



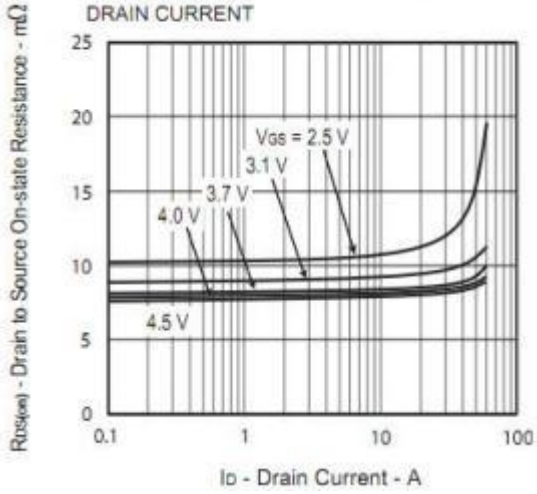
FORWARD TRANSFER ADMITTANCE vs.
DRAIN CURRENT



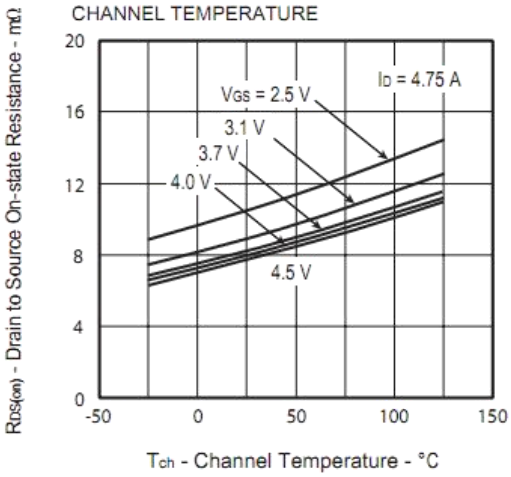
SOURCE TO DRAIN DIODE
FORWARD VOLTAGE



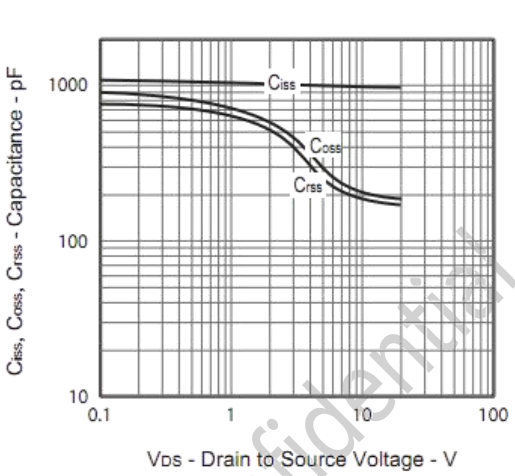
DRAIN TO SOURCE ON-STATE RESISTANCE v
DRAIN CURRENT



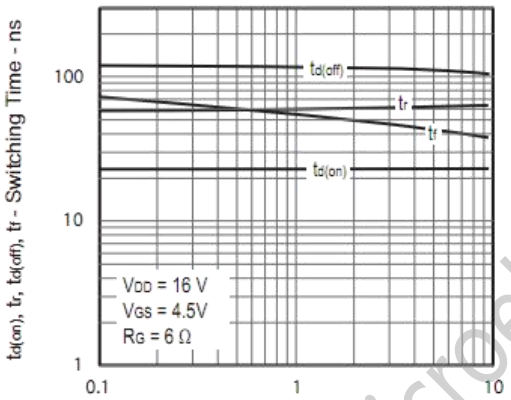
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



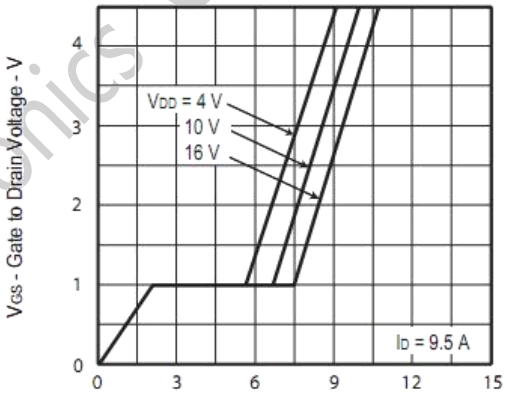
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



SWITCHING CHARACTERISTICS

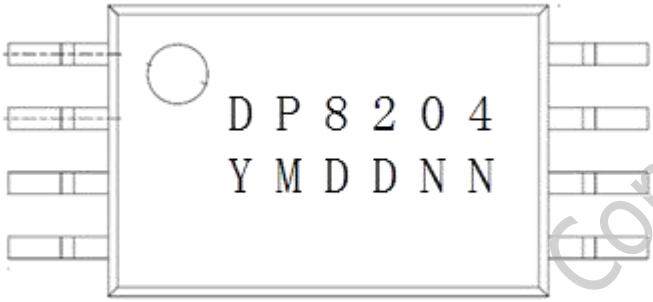


DYNAMIC INPUT CHARACTERISTICS



MARKING DESCRIPSION

TSSOP-8



NOTE:

Y —Code of productive year code(the last number of the year)

M —Code of productive month(for example: A means January, B means February…)

DD —Productive date(the number of the date)

NN —Lot number of wafer

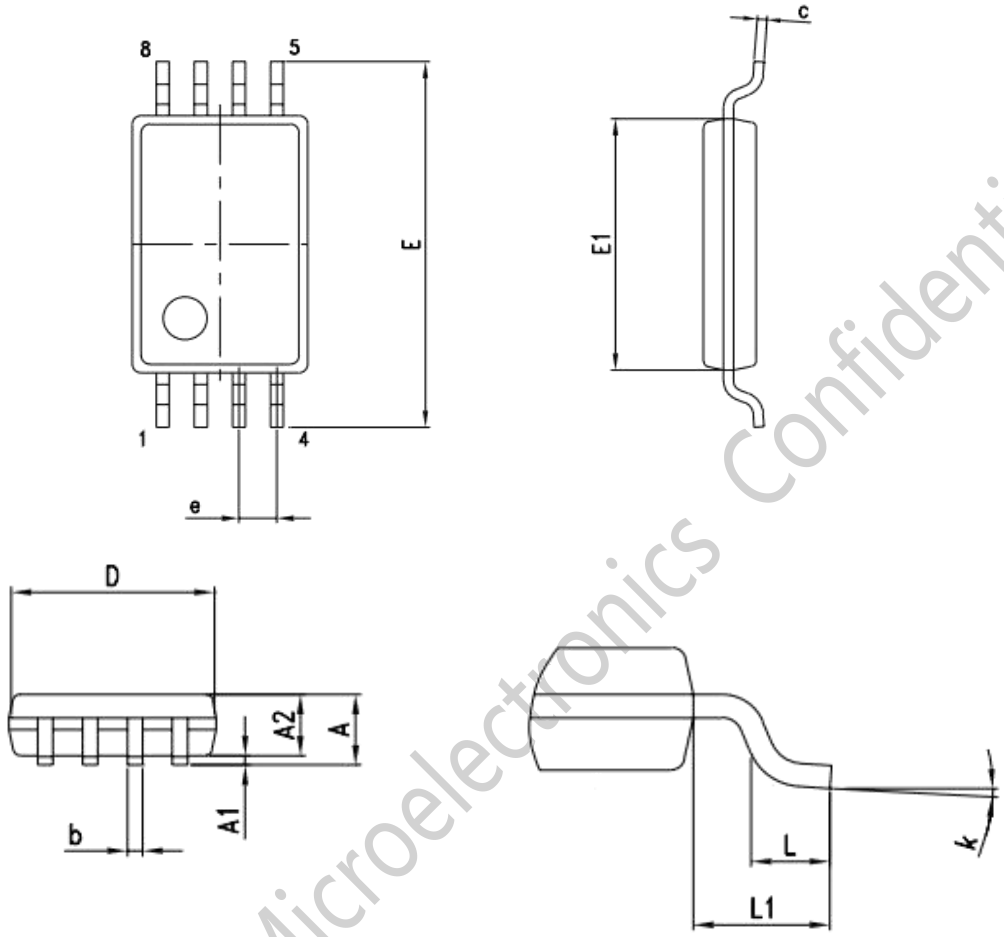
FOR EXCAMPLE:

5G1103

Means this product was produced in 2015-07-11 , and 03 is the wafer lot.

PACKAGE OUTLINE DIMENSIONS

TSSOP-8



DIM.	mm.			inch.		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	1.05		1.20	0.041		0.047
A1	0.05		0.15	0.002		0.006
A2	0.80		1.05	0.032		0.041
b	0.19		0.30	0.008		0.012
c	0.090		0.20	0.003		0.007
D	2.90		3.10	0.114		0.122
E	6.20		6.60	0.240		0.260
E1	4.30		4.50	0.170		0.177
e		0.65			0.025	
L	0.45		0.75	0.018		0.030
L1		1.00			0.039	
k	0°		8°	0.192		0.208

OFFICIAL ANNOUNCEMENT

Division I will ensure the accuracy and reliability of the product specification document, but we reserve the right to independently modify the content of the specification document without prior notice to the customer. Before placing an order, customers should contact us to obtain the latest relevant information and verify that this information is complete and up-to-date. All product sales are subject to the sales terms and conditions provided by our company at the time of order confirmation.

Division I will periodically update the content of this document. Actual product parameters may vary due to differences in models or other factors. This document does not serve as any express or implied guarantee or authorization.

The product specification does not include any authorization for the intellectual property owned by our company or any third party. With respect to the information contained in this product specification, we make no explicit or implied warranties, including but not limited to the accuracy of the specification, its fitness for commercial use, suitability for specific purposes, or non-infringement of our company's or any third party's intellectual property. We also do not assume any responsibility for any incidental or consequential losses related to this specification document and its use.

We do not assume any obligations regarding application assistance or customer product design. Customers are responsible for their own use of our company's products and applications. In order to minimize risks associated with customer products and applications, customers should provide thorough design and operational safety validation.

The reproduction, transmission or use of this document or its contents is not permitted without express written authority. Once discovered, the company will pursue its legal responsibility according to law and compensate for all losses caused to the company.

Please note that the product is used within the conditions described in this document, paying particular attention to the absolute maximum rating, operating voltage range, and electrical characteristics. The Company shall not be liable for any damage caused by malfunctions, accidents, etc. caused by the use of the product outside the conditions stated in this document.

Division I has been committed to improving the quality and reliability of products, but all semiconductor products have a certain probability of failure, which may lead to some personal accidents, fire accidents, etc.When designing products, pay full attention to redundancy design and adopt safety indicators, so as to avoid accidents.

When using our chips to produce products, Division I shall not be liable for any patent dispute arising from the use of the chip in the product, the specification of the product, or the country of import, etc., in the event of a patent dispute over the products including the chip.